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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force **Date:** February 2015

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	13.661	29.112	40.154	-	40.154	20.412	6.614	6.075	6.183	Continuing	Continuing
653133: <i>Bombs & Fuzes</i>	-	0.720	9.001	20.719	-	20.719	11.075	1.074	1.095	1.114	Continuing	Continuing
653134: <i>BLU-109 and BLU-113 Upgrade</i>	-	8.877	14.325	13.936	-	13.936	4.540	0.651	-	-	Continuing	Continuing
655361: <i>Stores-Aircraft Interface</i>	-	4.064	5.786	5.499	-	5.499	4.797	4.889	4.980	5.069	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Armament/Ordnance Development program provides for initial and continuing development of weapons/munitions (kinetic and non-kinetic) and munitions equipment for support and operational use. This program develops and improves the following weapons and weapons subsystems: bombs, bomb fuzes (to include the FMU-152 and FMU-139 general purpose, commodity fuzes), BLU-109 and BLU-113 legacy penetrator advancement demonstrations, insensitive munitions (IM) characteristics, aircraft ammunition, stores-aircraft interface upgrades to include the Universal Armament Interface (UAI), munitions materiel handling equipment (MMHE), munitions containers, and other weapon subsystems.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.

The FY2016 funding request was reduced for under execution by \$1.641 million to account for the availability of prior execution balances.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>
Previous President's Budget	13.661	31.112	37.460	-	37.460
Current President's Budget	13.661	29.112	40.154	-	40.154
Total Adjustments	-	-2.000	2.694	-	2.694
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	2.694	-	2.694

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<div>Change Summary Explanation</div> <div>FY 2016, Other Adjustments: +\$4.600M, enhance development of the the Advanced 5000lb Penetrator (A5K) -\$1.641M, reduced to account for the availability of prior execution balances -\$0.265M, inflation adjustment</div>		

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force										Date: February 2015		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604602F / Armament/Ordnance Development				Project (Number/Name) 653133 / Bombs & Fuzes			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
653133: Bombs & Fuzes	-	0.720	9.001	20.719	-	20.719	11.075	1.074	1.095	1.114	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
<p>The Bombs & Fuzes (Armament Subsystems) Project develops and improves conventional weapons/munitions (kinetic and non-kinetic) and fuzes. The project also provides an opportunity to quickly insert emerging technologies into existing and developing aircraft munitions and fuzes. Bombs and fuzes provides research, development and testing of conventional warhead and fuzing modifications to improve lethality against area targets, to include anti-personnel anti-materiel (APAM) targets. This project provides for the development and testing necessary to provide a suitable manufacturing base of conventional warheads and fuzes.</p> <p>In addition, the project contains a variety of other work: Bombs/munitions and fuzes:</p> <ul style="list-style-type: none">- Medium Caliber Ammunition project assesses, refines, and develops medium caliber ammunition, to include, but not limited to, conducting PGU-28A/B (F-22) and 25mm (F-35) qualification testing.- Follow-on development activities for legacy fuzes, including reliability enhancements and producibility improvements.- Improved Lethality (IL): IL continues and expands development planning and legacy warhead efforts to improve lethality against area targets, to include anti-personnel anti-material (APAM) targets. This effort studies, designs, develops and tests warhead and fuzing modifications which improve lethality against APAM while meeting current DoD policy on cluster munitions and unintended harm to civilians. These improvements may be synergistic with maintaining a suitable manufacturing base. This effort was a new start effort in Project 653133, Bombs & Fuzes, in FY15.- Insensitive Munitions (IM): IM develops less sensitive explosive fills and bomb case modifications to improve the response of conventional weapons to unplanned stimuli. The project also supports AF IM strategic planning to achieve IM compliance IAW U.S. Code, Title 10, Subtitle A, Part N, Chapter 141, Section 2389, Ensuring safety regarding insensitive munitions.- Munitions Materiel Handling Equipment (MMHE) and Container Design Retrieval System (CDRS): MMHE is a continuing project to develop and improve the standardization and commonality of munitions handling and armament equipment to preclude duplication. Efforts are primarily the study, design, and development of MMHE and armament control systems; however, support may be provided to other functional areas as requested. Procurement will be performed and funded by the applicable weapons system project. The tri-service CDRS is a database intended to preclude proliferation and duplication of munitions containers. It also supports organic container design, acquisition transportation, prototyping and testing capabilities, as well as the Joint Ordnance Commander's Working Group (JOCG) for Packaging, Handling, and Loading.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2014	FY 2015	FY 2016	
Title: Munitions Materiel Handling Equipment (MMHE)/Container Design Retrieval System (CDRS)									0.466	0.738	0.748	

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Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>	Project (Number/Name) 653133 / <i>Bombs & Fuzes</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015
<p>Description: MMHE and CDRS. Armament Standardization/Control/Munitions Materiel Handling Equipment (MMHE) is a continuing project to develop and improve the standardization and commonality of munitions handling and armament equipment to preclude duplication. Efforts are primarily the study, design, and development of MMHE and armament control systems; however, support may be provided to other functional areas as requested. Procurement will be performed and funded by the applicable weapons system project. The tri-service Container Design Retrieval System (CDRS) is a database intended to preclude proliferation and duplication of munitions containers. It also supports organic container design, acquisition transportation, prototyping, Packaging, Handling, Storage & Transportation (PHS&T) support and testing capabilities, as well as the Joint Ordnance Commander's Working Group (JOCG) for Packaging, Handling, and Loading.</p> <p>FY 2014 Accomplishments: Provided container design expertise and technical support to AF munitions/weapons containers developers. Maintained the tri-service CDRS database search ability to preclude proliferation and duplication of munitions containers. Completed six MMHE support equipment projects to include engineering, drafting, proof load, technical data, and safety authorizations. Fabricated six prototypes for test and evaluation purposes. Complete four first article equipment fabrications for drafting verification and delivery to Air Force units for additional test and evaluation. Provided support to all system program offices with new weapons and container development. Continued support to the multi service F-35/JSF programs with equipment to test and evaluate various Alternate Mission Equipment to include pylons, racks and adapters. Continued support and sustainment of all previously existing items developed by the MMHE program office. Continue to provide direct customer support through limited customer support visits.</p> <p>FY 2015 Plans: Provide expert DoD wide customer support with container design and technical support for munitions/weapons containers developers. Complete 10 MMHE support equipment projects to include engineering, drafting, proof load, technical data, and safety authorizations. Fabricate 7 prototypes for test and evaluation purposes. Complete 7 first article equipment fabrications for drafting verification and delivery to Air Force units for additional test and evaluation. Provide support to all system program offices with new weapons and container development. Continue support to the F-35 program with equipment to aid safe munitions loading and handling of various pylons and adapters. Continue support and sustainment of all previously existing items developed by the MMHE program office.</p> <p>FY 2016 Plans: Provide expert DoD wide customer support with container design and technical support for munitions/weapons containers developers. Complete 10 MMHE support equipment projects to include engineering, drafting, proof load, technical data, and safety authorizations. Fabricate 10 prototypes for test and evaluation purposes. Complete 10 first article equipment fabrications for drafting verification and delivery to Air Force units for additional test and evaluation. Provide support to all system program</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2014	FY 2015	FY 2016
offices with new weapons and container development. Continue support to the F-35 program with equipment to aid safe munitions loading and handling of various pylons and adapters. Continue support and sustainment of all previously existing items developed by the MMHE program office.					
Title: Medium Caliber Ammunition Description: Assess, refine, and develop medium caliber ammunition. The project provides enterprise management of guns, ammunition, and Munitions Materiel Handling Equipment (MMHE) systems integration. FY 2014 Accomplishments: N/A FY 2015 Plans: Complete procurement of 25mm Frangible Armor Piercing (FAP) rounds to support DT/OT of gun system during F-35 EMD. FY 2016 Plans: Continue to provide engineering and technical support for DT flight testing of PGU-48/B (Frangible Armor Piercing (FAP)) rounds and integration of PGU-48/B with the F-35 25mm gun ammunition loader assembly. Continue/complete acquisition planning for initial production contract and acquisition of data rights. Provide engineering and test support for IM improvements of 105mm PGU-44/U ammunition.			-	0.100	0.100
Title: Insensitive Munitions (IM) Description: Strategic IM planning for the AF; support Joint Service IM efforts; provide technical guidance and test expertise to AF IM programs FY 2014 Accomplishments: Delivered the FY 15/16 AF IM Strategic Plan; supported DoD and Joint Service IM planning; provided IM planning expertise to individual AF programs. FY 2015 Plans: Initiate the FY17/18 AF IM Strategic Plan; support DoD and Joint Service IM planning; provide IM planning expertise to individual AF programs. FY 2016 Plans:			0.254	0.400	0.350

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B. Accomplishments/Planned Programs (\$ in Millions)							FY 2014	FY 2015	FY 2016		
Deliver the FY17/18 AF IM Strategic Plan; support DoD and Joint Service IM planning; provide IM planning expertise to individual AF programs.											
Title: Improved Lethality (IL)							-	7.763	19.521		
Description: Improve lethality against area targets, to include anti-personnel anti-materiel (APAM) targets. Improvements must meet current DoD policy on cluster munitions and unintended harm to civilians and may be synergistic with maintaining a suitable manufacturing base. While also providing a possible solution for the next generation area attack weapon (NGAAW).											
FY 2014 Accomplishments: N/A											
FY 2015 Plans: Expand previous development planning efforts to study options and demonstrate technologies for improved lethality in future scenarios which meet DoD policy on cluster munitions and unintended harm to civilians. Begin manufacturing development of a direct attack employed, interim, 500lb warhead for improved APAM target lethality which meets DoD policy.											
FY 2016 Plans: Expand previous development planning efforts to study options and demonstrate technologies for improved lethality in future scenarios while meeting DoD policy on cluster munitions and unintended harm to civilians. Complete manufacturing development and begin test of a direct attack employed, interim, 500lb warhead for improved APAM target lethality which meets DoD policy. In addition to meeting current DoD policy on cluster munition and unintended harm to civilians, improvements may be synergistic with maintaining a suitable manufacturing base. Begin a second phase to address other aspects of a next generation area attack weapon.											
Accomplishments/Planned Programs Subtotals							0.720	9.001	20.719		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA04: PE 0604337F: Requirements Analysis and Maturation	11.884	-	-	-	-	-	-	-	-	-	-
Remarks											
The Improved Lethality (IL) effort continues and expands upon developmental planning work accomplished in the Requirements Analysis and Maturation PE (0604337F).											

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Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604602F / Armament/Ordnance Development	Project (Number/Name) 653133 / Bombs & Fuzes
D. Acquisition Strategy <ul style="list-style-type: none">- Fuzes (including the FMU-152) is a continuing effort with most activities performed in-house or through contracted services (small contracts).- Munitions Materiel Handling Equipment (MMHE) and Container Design Retrieval System (CDRS) project activities are performed in-house with limited technical and analysis contract support.- Medium Caliber project activities are performed in-house with technical and analysis contract support, organic government test support, and possible contracted services (small contracts).- The Improved Lethality qualification program will provide a materiel solution and possible modification packages that would precede efforts to achieve a full qualification and low rate initial production (LRIP) for an Improved Lethality Warhead.		
E. Performance Metrics <p>Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force												Date: February 2015			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604602F / Armament/Ordnance Development				Project (Number/Name) 653133 / Bombs & Fuzes					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IM	TBD	Air Force Research Lab RWM : Eglin AFB, FL	-	0.150	Jan 2014	0.170	Apr 2015	0.120	Apr 2016	-		0.120	Continuing	Continuing	TBD
MMHE/CDRS -- Prototypes	PO	Prototype Fabrication Shop : Eglin AFB, FL	-	0.100	Oct 2013	0.415	May 2015	0.300	May 2016	-		0.300	Continuing	Continuing	TBD
IL Phase II - Concept Development	C/TBD	Not specified. : ,	-	-		-		17.885	Mar 2016	-		17.885	Continuing	Continuing	-
IL - NRE Contractor	C/TBD	Not specified. : ,	-	-		5.354	Jan 2016	-		-		-	Continuing	Continuing	-
IL - Recurring Contractor	C/TBD	Not specified. : ,	-	-		0.160	Jan 2016	-		-		-	Continuing	Continuing	-
IL - Mission Planning	PO	Not specified. : ,	-	-		-		0.748	Mar 2016	-		0.748	Continuing	Continuing	-
Subtotal			-	0.250		6.099		19.053		-		19.053	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IM/APKWS	Various	AFLCMC EBSN & XZWG and AFRL RW : Eglin AFB, FL	-	0.029		-		-		-		-	Continuing	Continuing	TBD
APKWS contract support	C/CPAF	TEAS TAMS : Eglin AFB, FL	-	0.075	Jun 2014	-		-		-		-	Continuing	Continuing	TBD
Fuzes -- Progam Office support	C/CPAF	AFLCMC EBDZ : Eglin AFB, FL	-	-		-		-		-		-	Continuing	Continuing	-
MMHE/CDRS contract support	C/FFP	TEAS : Eglin AFB, FL	-	0.224	Oct 2013	0.126	Oct 2014	0.300	Oct 2015	-		0.300	Continuing	Continuing	-
MMHE/CDRS -- Program Office support	PO	AFLCMC/EBD : Eglin AFB, FL	-	0.142	Oct 2013	0.197	Nov 2014	0.148	Nov 2015	-		0.148	Continuing	Continuing	TBD
Medium Caliber Ammunition - Program Office support	TBD	AFLCMC EBSN : Eglin AFB, FL	-	-		0.100	Oct 2014	0.100	Oct 2015	-		0.100	Continuing	Continuing	TBD
IL - Logistics Support	Various	Not specified. : ,	-	-		0.213	Aug 2015	0.101	Aug 2016	-		0.101	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force													Date: February 2015		
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>				Project (Number/Name) 653133 / <i>Bombs & Fuzes</i>					

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	0.470		0.636		0.649		-		0.649	-	-	-

Remarks
TEAS/TAMS contractors provide support to the System Program Office (SPO) for technical (TEAS) and management/financial (TAMS) services

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Medium Caliber	TBD	Various : Various,	-	-		-		-		-		-	Continuing	Continuing	TBD
FW APKWS II	Various	Various : Various,	-	-		-		-		-		-	Continuing	Continuing	-
IL Modeling and Simulation	PO	Not specified. : ,	-	-		1.270	Apr 2015	-		-		-	Continuing	Continuing	-
IL - Test and Evaluation	PO	Not specified. : ,	-	-		0.175	Jan 2016	-		-		-	Continuing	Continuing	-
Subtotal			-	-		1.445		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IL PMA	TBD	Not specified. : ,	-	-		0.591	Apr 2015	0.787	Nov 2015	-		0.787	Continuing	Continuing	-
IM PMA	Various	Not specified. : ,	-	-		0.230	Oct 2014	0.230	Oct 2015	-		0.230	Continuing	Continuing	-
Subtotal			-	-		0.821		1.017		-		1.017	-	-	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.720	9.001	20.719	-	20.719	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force			Date: February 2015		
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>			Project (Number/Name) 653133 / <i>Bombs & Fuzes</i>

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Munitions Materiel Handling Equipment (MMHE): design, prototype, test priority MMHE projects																												
Container Design Retrieval System (CDRS): support tri-service data base																												
Medium Caliber Ammunition: Procure 25mm Frangible Armor Piercing (FAP) rounds for DT/OT of F-35 gun system																												
Submit AF FY15/16 Insensitive Munitions (IM) Strategic Plan																												
Submit AF FY17/18 Insensitive Munitions (IM) Strategic Plan																												
Submit AF FY19/20 Insensitive Munitions (IM) Strategic Plan																												
Submit AF FY21/22 Insensitive Munitions (IM) Strategic Plan																												
IL: Modeling and Simulation																												
IL: Contract Prep/Source Selection																												
IL: Contract Award																												
IL: Mold Design, Build, Test																												
IL: Phase II																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>	Project (Number/Name) 653133 / <i>Bombs & Fuzes</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Munitions Materiel Handling Equipment (MMHE): design, prototype, test priority MMHE projects	1	2014	4	2020
Container Design Retrieval System (CDRS): support tri-service data base	1	2014	4	2020
Medium Caliber Ammunition: Procure 25mm Frangible Armor Piercing (FAP) rounds for DT/OT of F-35 gun system	1	2014	4	2014
Submit AF FY15/16 Insensitive Munitions (IM) Strategic Plan	2	2014	2	2014
Submit AF FY17/18 Insensitive Munitions (IM) Strategic Plan	2	2016	2	2016
Submit AF FY19/20 Insensitive Munitions (IM) Strategic Plan	2	2018	2	2018
Submit AF FY21/22 Insensitive Munitions (IM) Strategic Plan	2	2020	2	2020
IL: Modeling and Simulation	3	2015	3	2016
IL: Contract Prep/Source Selection	1	2015	1	2016
IL: Contract Award	1	2016	1	2016
IL: Mold Design, Build, Test	1	2016	1	2018
IL: Phase II	2	2016	1	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force										Date: February 2015		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604602F / Armament/Ordnance Development				Project (Number/Name) 653134 / BLU-109 and BLU-113 Upgrade			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
653134: BLU-109 and BLU-113 Upgrade	-	8.877	14.325	13.936	-	13.936	4.540	0.651	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
BLU-109 and BLU-113 Upgrade [Advanced BLU-109 and BLU-113 (A2K/A5K)]: This project demonstrates advancements in capability of these two legacy penetrator warheads, enabling them to hold more targets at risk than currently achievable with legacy weapons. The initial effort will focus on demonstrating an advanced 2000 lb (A2K) warhead and an advanced 5000 lb (A5K) warhead in a relavent military environment.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2014	FY 2015	FY 2016	
Title: Advanced 2000 lb (A2K) Penetrator 2K) and Advanced 5000 lb (A5K) Penetrator Programs									8.877	14.325	13.936	
Description: Conduct A2K & A5K design analysis, warhead modifications, and testing to improve BLU-109/113 performance against increasingly hardened targets. Designs will maintain the current BLU-109/113 mold lines and will attempt to maintain current BLU-109/113 mass properties and Insensitive Munitions (IM) characteristics.												
FY 2014 Accomplishments: Began risk reduction and demonstration/qualification testing of A2K design to include modified FMU-152 fuzing units (FZUs) and cables, modified JDAM hardbacks, and modified warhead cases employed on the threshold platforms (B-2A & F-15E).												
FY 2015 Plans: Continue risk reduction and demonstration/qualification testing of A2K design to include modified FMU-152 FZUs and cables, modified JDAM hardbacks, and modified warhead cases employed on the threshold platforms (B-2A & F-15E). Begin manufacturing and technical data package study. Begin A5K design analysis and modeling and simulation.												
FY 2016 Plans: Complete manufacturing and technical data package study. As well as, risk reduction and qualification testing of A2K design to include modified FZUs and cables, modified JDAM hardbacks, and modified warhead cases employed on the threshold platforms (B-2A & F-15E). Continue A5K risk reduction.												
Accomplishments/Planned Programs Subtotals									8.877	14.325	13.936	

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C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2016</u>	<u>FY 2016</u>	<u>FY 2016</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Complete</u>	<u>Total Cost</u>
• RDTE:BA04:PE 0604618F: Joint Direct Attack Munition	2.500	2.469	-	-	-	-	-	-	-	-	-
Remarks N/A											
D. Acquisition Strategy The A2K/A5K project will provide a BLU-109/BLU-113 modification package to enable a project demonstration.											
E. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force												Date: February 2015			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604602F / Armament/Ordnance Development				Project (Number/Name) 653134 / BLU-109 and BLU-113 Upgrade					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Design Engineering and Test Assets	C/CPIF	Various : Various,	-	3.966	Jun 2014	8.891	Jan 2015	6.267	Dec 2015	-		6.267	Continuing	Continuing	-
Subtotal			-	3.966		8.891		6.267		-		6.267	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Data	PO	Various : Eglin, FL	-	-		-		0.150	Mar 2016	-		0.150	Continuing	Continuing	-
Subtotal			-	-		-		0.150		-		0.150	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	Various	Various : Various,	-	4.321	Sep 2014	4.844	Jan 2015	6.896	Dec 2015	-		6.896	Continuing	Continuing	-
Subtotal			-	4.321		4.844		6.896		-		6.896	-	-	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration/Program Support	Various	Various : Various,	-	0.590	Oct 2014	0.590	Jun 2014	0.623	Oct 2015	-		0.623	Continuing	Continuing	-
Subtotal			-	0.590		0.590		0.623		-		0.623	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force											Date: February 2015					
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604602F / Armament/Ordnance Development					Project (Number/Name) 653134 / BLU-109 and BLU-113 Upgrade						
				Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals				-	8.877		14.325		13.936		-		13.936	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force			Date: February 2015		
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>			Project (Number/Name) 653134 / <i>BLU-109 and BLU-113 Upgrade</i>

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
A2K: Risk Reduction and Demonstration/Qualification																												
- Arming Generator Relocation Adaptor and Case Preliminary Design Review																												
- Sled Tests																												
- Mfg and Tech Data Package																												
- Insensitive Munitions Test (SCO/FCO)																												
- A2K Contract Award																												
- Build Assets																												
- OT Flight Test																												
- LRIP																												
A5K: Risk Reduction -- Modeling and Simulation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>	Project (Number/Name) 653134 / <i>BLU-109 and BLU-113 Upgrade</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
A2K: Risk Reduction and Demonstration/Qualification	3	2014	4	2017
- Arming Generator Relocation Adaptor and Case Preliminary Design Review	2	2015	2	2015
- Sled Tests	1	2015	4	2015
- Mfg and Tech Data Package	4	2015	2	2016
- Insensitive Munitions Test (SCO/FCO)	2	2016	2	2017
- A2K Contract Award	1	2017	1	2017
- Build Assets	1	2017	4	2017
- OT Flight Test	3	2017	4	2017
- LRIP	1	2018	2	2019
A5K: Risk Reduction -- Modeling and Simulation	3	2015	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force										Date: February 2015		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604602F / Armament/Ordnance Development				Project (Number/Name) 655361 / Stores-Aircraft Interface			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
655361: Stores-Aircraft Interface	-	4.064	5.786	5.499	-	5.499	4.797	4.889	4.980	5.069	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Stores-Aircraft Interface: This project conducts stores-aircraft interface upgrades and standards development to include the Universal Armament Interface (UAI). UAI is an Air Force initiative to develop standardized software interfaces in aircraft, weapons and mission planning to support integration of weapons independent of aircraft Operational Flight Program (OFP) cycles.Universal Armament Interface (UAI) is an Air Force program to develop, enhance, and implement standardized interfaces in current and future aircraft (manned or unmanned), weapons and mission planning to support integration of weapons independent of aircraft Operational Flight Program (OFP) cycles. UAI is currently being implemented on the F-15E, F-16 Block 40/50, and EPAF(European Participating Air Forces) F-16 aircraft, Small Diameter Bomb (SDB) I and II, Joint Direct Attack Munition (JDAM), Laser JDAM, Joint Air-to-Surface Stand-off Missile (JASSM) and Precision Guided Munitions Planning Software (PGMPS). Additional aircraft and weapons, including but not limited to, Joint Strike Fighter (JSF/F-35), LRS-B, MQ-9, JASSM-ER, CWDS as well as Army UAVs and Navy F/A-18 and UAVs, have program plans to implement UAI. The UAI program office is responsible for development and enhancement of the standard (U.S. and allied), support to coalition/allied/joint interoperability efforts for weapons-platform interface efforts, provision of certification tools and implementation support to aircraft and weapons.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2014	FY 2015	FY 2016	
Title: UAI Development									4.064	5.786	5.499	
Description: Conduct stores-aircraft interface upgrades and standards development to the Universal Armament Interface (UAI), development of and maintenance to the UAI, and facilitation of aircraft, stores and mission planning program users in the UAI process.												
FY 2014 Accomplishments: Continued development and configuration management of UAI standards in response to user needs, working group management, technical meetings and workshops, risk reduction studies, common mission planning, and integration support. Also, continued integration and updates to test tools, including maintenance and procurement of certification tools. These tools are shared among aircraft and weapons programs to reduce time and cost for UAI integration efforts. Drafted a multinational Memorandum of Understanding to broaden the use of UAI to nine coalition partners.												
FY 2015 Plans: Continue development and configuration management of UAI standards in response to user needs, working group management, technical meetings and workshops, risk reduction studies, common mission planning, integration support and updates to test tools. Procure certification tools with miniature and micro munitions interface capability to meet F-35, SDB II and other future user												

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015	
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>	Project (Number/Name) 655361 / <i>Stores-Aircraft Interface</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>system integration lab test certification needs. Start negotiation for multinational Memorandum of Understanding to broaden the use by coalition partners.</p> <p><i>FY 2016 Plans:</i> Continue development and configuration management of UAI standards in response to new users including LRS-B, JASSM-ER, CWDS, F/A-18 and Army & Navy UAVs. Support working group management, technical meetings and workshops, risk reduction studies, common mission planning, and integration support. Also, continue integration and updates to test tools, including maintenance and procurement of certification tools. These tools are shared among aircraft and weapons programs to reduce time and cost for UAI integration efforts. Continued negotiation for multinational Memorandum of Understanding to broaden the use by coalition partners.</p>			
Accomplishments/Planned Programs Subtotals	4.064	5.786	5.499

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• None: N/A	-	-	-	-	-	-	-	-	-	-	-
Remarks N/A											
D. Acquisition Strategy In December 2004, under the authority of a class Justification and Approval (J&A), the UAI program office awarded individual Cost Plus Fixed Fee (CPFF) contracts to Boeing, Lockheed Martin, Northrop Grumman and Raytheon. Each Original Equipment Manufacturer is responsible for a different piece of the total UAI requirement based on its product-specific (platform/weapon) expertise. During FY10 these contracts expired. Under the authority of a new class J&A, Cost Plus Incentive Fee (CPIF) contracts were awarded to the four UAI vendors in August 2010. Follow-on period of performance was awarded in March 2014 for 16 months to better align future contract awards with funding through the Five Year Defense Plan. A new acquisition strategy is under development to continue UAI effort to after Aug 2015.											
E. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force												Date: February 2015			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604602F / Armament/Ordnance Development				Project (Number/Name) 655361 / Stores-Aircraft Interface					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Interface Control Document (ICD) Development/Updates/ Maintenance	SS/CPIF	Boeing Northrop Grumman Lockheed Martin Raytheon : Various,	-	2.781	Mar 2014	3.211	Nov 2014	2.399	Nov 2015	-		2.399	Continuing	Continuing	TBD
UAI Common Component	SS/CPIF	Northrop Grumman : Bethpage, NY	-	0.983	May 2013	1.475	Nov 2014	1.500	Nov 2015	-		1.500	Continuing	Continuing	TBD
Certification Tool	SS/CPFF	Boeing Northrop Grumman Lockheed Martin Raytheon : Various,	-	0.150	Jan 2014	0.600	Nov 2014	0.800	Nov 2015	-		0.800	Continuing	Continuing	TBD
Subtotal			-	3.914		5.286		4.699		-		4.699	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration/Program Support	Various	Various : Various,	-	0.150		0.500		0.800		-		0.800	Continuing	Continuing	TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force												Date: February 2015		
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>				Project (Number/Name) 655361 / <i>Stores-Aircraft Interface</i>				

Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	0.150		0.500		0.800		-		0.800	-	-	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	4.064	5.786	5.499	-	5.499	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force			Date: February 2015		
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>			Project (Number/Name) 655361 / <i>Stores-Aircraft Interface</i>

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ICD Development/Governance (SJICWG), (UAI funded)																												
Certification Tools (CTs) Dev / Update, (UAI funded)																												
UAI (Msn PIng) Common Component, (UAI funded)																												
F-15E Suite 6, (Field as UAI)																												
F-15E Suite 8 (Program funded)																												
F-16 M6+ (Blk 40/50), (Program funded)																												
JDAM Block 10, (Program funded)																												
JASSM-ER, ((Program funded)																												
SDB 1/BRU-61, (Field as UAI)																												
SDB II, (Program funded)																												
F-35 Blk 4, (Program funded)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604602F / <i>Armament/Ordnance Development</i>	Project (Number/Name) 655361 / <i>Stores-Aircraft Interface</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ICD Development/Governance (SJICWG), (UAI funded)	1	2014	4	2020
Certification Tools (CTs) Dev / Update, (UAI funded)	1	2014	4	2020
UAI (Msn PIng) Common Component, (UAI funded)	1	2014	4	2020
F-15E Suite 6, (Field as UAI)	1	2014	1	2014
F-15E Suite 8 (Program funded)	1	2014	4	2017
F-16 M6+ (Blk 40/50), (Program funded)	1	2014	4	2015
JDAM Block 10, (Program funded)	1	2014	4	2016
JASSM-ER, ((Program funded)	1	2014	3	2018
SDB 1/BRU-61, (Field as UAI)	1	2014	1	2014
SDB II, (Program funded)	1	2014	4	2017
F-35 Blk 4, (Program funded)	1	2016	4	2020